THE CLAYS *of* KENTUCKY

By

WILLARD ROUSE JILLSON

Director and State Geologist

KENTUCKY GEOLOGICAL SURVEY

FRANKFORT, KENTUCKY

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The

Kentucky Geological Survey

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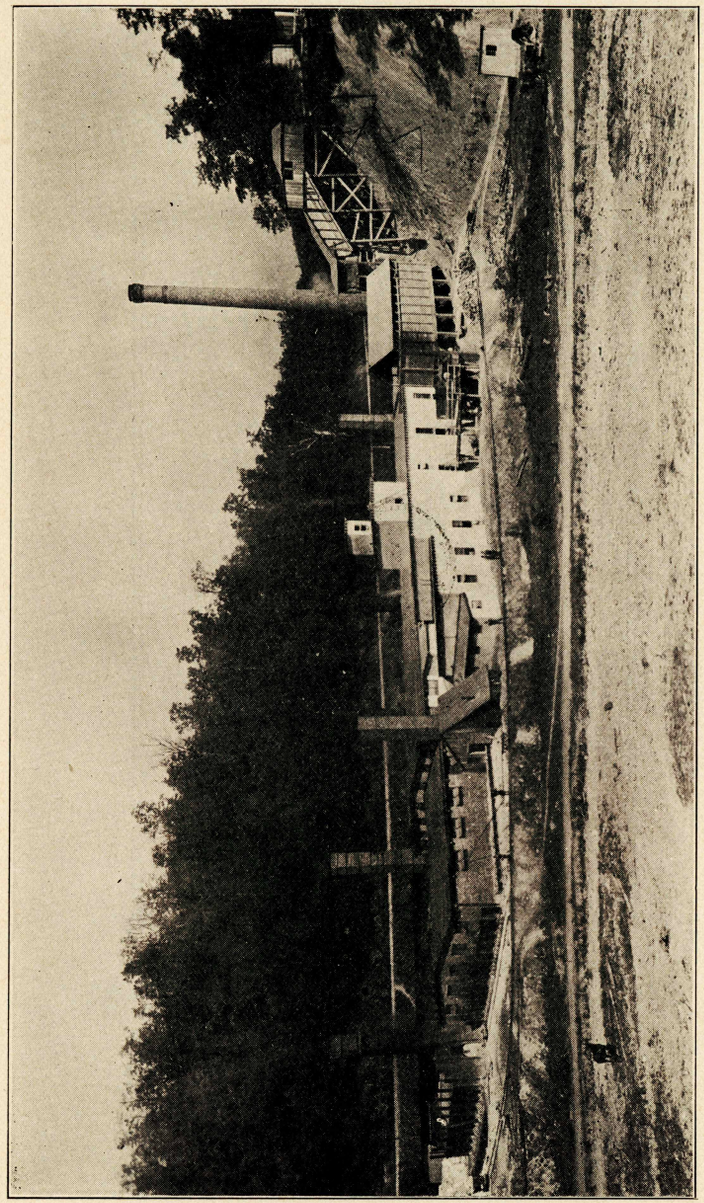

EASTERN KENTUCKY FIRE BRICK PLANT
This view shows one of the operations of the Kentucky Fire Brick Co., located at Haldeman in Rowan County. It has a daily capacity of about 40,000 fire bricks.

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Seven Illustrations of Kentucky's Clay Resources

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The Clays of Kentucky[1]

By Dr. Willard Rouse Jillson
State Geologist of Kentucky

The clay deposits of Kentucky form one of the state's richest endowments of mineral wealth. They naturally fall into four major divisions. These groupings are regional, being based logically upon the varying geology of the Commonwealth. With the single exception of the mineral waters of the state, the clays have been used longer than any other mineral resource.

The first homesteading pioneers entering Kentucky under the leadership of Daniel Boone during and closely following the Revolution sought out good deposits of brick and pottery clay, making immediate use of them.

First Brick Houses

Colonel William Whitley, noted Indian fighter and reputed slayer of the great Tecumseh, colleague of Boone the explorer and General George Rogers Clark, conqueror of the Northwest territory, built the first fine brick house in Kentucky near Crab Orchard, Lincoln County, in the year 1786 or 1787. The clay was dug and the brick were burned on his own extensive Virginia land grant on Cedar Creek.

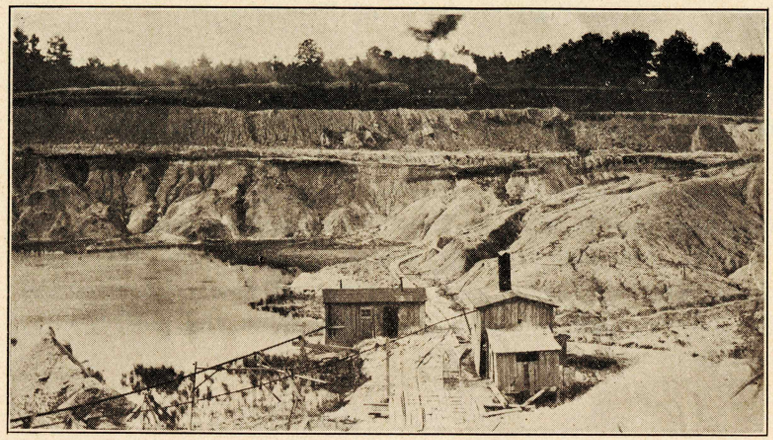
Other fine brick houses for that day and time, with hand carved interior trim of solid black walnut, were built shortly following in the vicinity of Barbourville, Harrodsburg, Lexington, Bardstown, and Louisville at the Falls of the Ohio River. Many of these old land marks and some of the old hand-made pottery used in them, including that of the Whitley homestead, are still in use today, though nearly a century and a half has passed.

Clay Deposits and Production

Regionally, the clays of central Kentucky are derived from both residual and alluvial deposits. The residual clays were originally calcareous shales and shaley limestones in the sequence of the Paleozoic rocks of the Blue Grass, the Knobs and the

[1] Reprinted with revisions and additions from the Ceramist, Trenton, N. J. Feb., 1926.

Pennyroyal Plateau. These deposits, with a few notable exceptions such as that of a restricted locality in Madison County



A JACKSON PURCHASE CLAY PIT

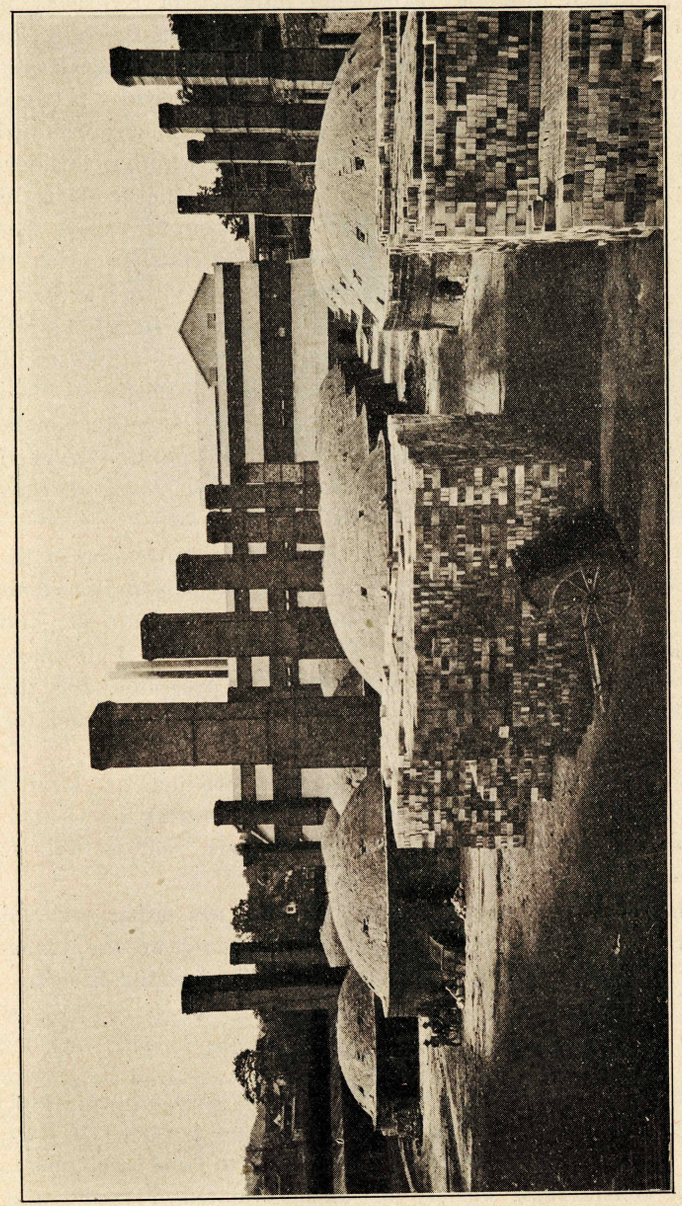
This is the operation of the Kentucky Construction and Improvement Company, at Pryorsburg in Graves County. Both sagger and ball clay are produced.

where Tertiary clays are used for ornamental pottery and domestic stoneware, are confined in their scource to rocks of Ordovician, Silurian, Devonian and Mississippian age.

In the Waverly group (Lower Mississippian) several excellent shales, tough and red burning, are recognized and operated. Chief among these are the Rosewood shale near Louisville, the New Providence shale extending from Louisville in a semi-circle through the Knob belt to the vicinity of Stanford, and the Bedford shale found only from Irvine to Vanceburg.

The chief products produced from these clays are common and ornamental building brick, drain tile, and hollow blocks. Of lesser, though considerable importance, are the floor and wall tile, sewer pipe and pottery products.

The largest clay manufacturing establishments are located in the vicinity of Newport, Covington, Louisville and Lexington, though there are a number of smaller plants well distributed through the southern central part of the state, using clays of the group above described. At Maysville, on the Ohio River, surface clays of Pleistocene age are used in making building brick.



AN OLIVE HILL, CARTER COUNTY, KENTUCKY, FIRE BRICK PLANT

This view shows the yards and some of the kilns of the Colonial Refractory Co., located at Olive Hill, Kentucky. Fire clays of best grade mined in this district are used here. This plant is typical of the field. It has a very large daily capacity.

The largest unit clay producing industry of Kentucky is that built upon the deposits of flint and semi-flint fire clays of North-eastern Kentucky. These deposits are all of upper carboniferous age and are found at the line of unconformity between the Mississippian and Pennsylvania sediments. They are mined in Rowan, Carter and Greenup Counties, and while a considerable proportion of the tonnage is delivered in the crude form outside of the state, the bulk of the flint and semi-flint clays that are produced in Kentucky are manufactured into fire brick of various kinds at or near the mines, and in Louisville, Kentucky. These products find their way into the largest metallurgical, glass-making, and other associated high thermal industries of the United States. The remainder of the Eastern coal field has few clay-working establishments though considerable deposits of clay are known to exist at various points. Common brick are manufactured near South Portsmouth, Ashland, Barbourville, Corbin, and Williamsburg.

In Western Kentucky, due to the gradual depression of the coal field in this district during late geological periods, excellent and widespread deposits of clay suitable for brick, drain tile, and sewer pipe manufacture occur. The large number of drainage projects recently under construction and projected for the immediate future have given rise to a considerable demand for drain tile in this section.

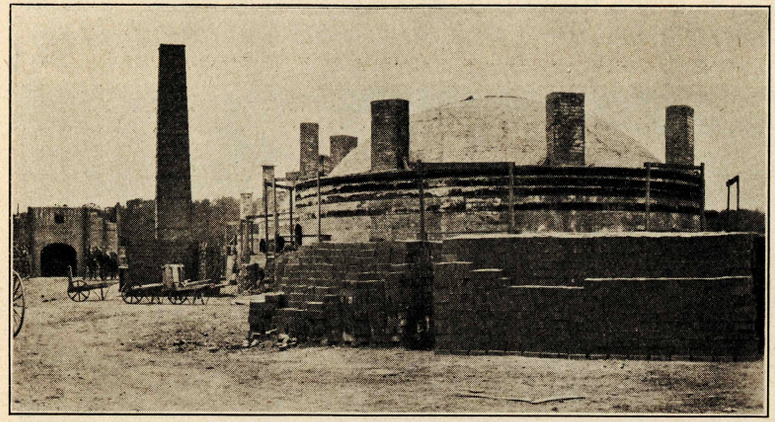
Industries supplying these and similar products are located in the vicinity of Henderson, Owensboro, Madisonville, Central City, and in adjoining areas. At Cloverport, roof as well as floor and wall tile also are manufactured.

The clays used in practically all cases are either residual from the Coal Measure (Pennsylvania) shales, or are transported silts of the Ohio, the Green or the Tradewater Rivers.

JACKSON PURCHASE DEPOSITS

The Jackson Purchase comprises a unit area separate physiographically and geologically from all other portions of Kentucky. It is the northeastern portion of the old Gulf embayment. In it a considerable variety of unconsolidated Tertiary and Pleistocene sediments occur. From a standpoint of ceramics,

the ball and sagger clays as well as the stoneware and brick clays are of chief importance. Large mines or clay pits are located near Wickliffe, Benton, Mayfield and Murray.



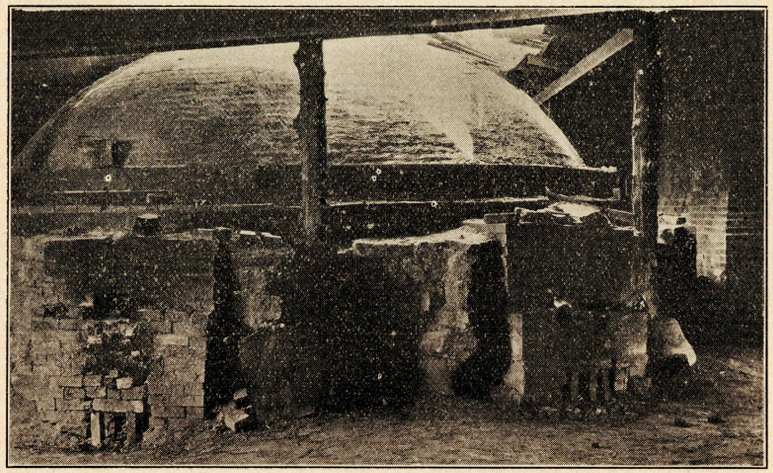
BRICK YARD AND KILN
This view shows the plant of the Standard Brick Works at Mayfield. There are many similar plants throughout Kentucky.

The best pottery clays are found in Calloway and Graves Counties, while a considerable pottery manufacturing industry is found near Paducah. Brick are manufactured at Mayfield, Paducah and at Clinton, but most of the ball and sagger clays operated in this section are exported to the northeast, principally into the States of Pennsylvania and New Jersey, where they are combined with other materials for high grade pottery and electrical porcelain manufacturing purposes.

CHARACTER OF DEPOSITS

Kentucky clay deposits, as this brief summary indicates, are not only widespread and variegated but are of excellent quality, no better flint or semi-flint fire clays occurring in as large a quantity or in as accessible a location exist in the United States than those of Northeastern Kentucky. This field has been but partly opened. Recent coreing has shown that very considerable deposits of these indispensable industrial and metallurgical clays are existent at points somewhat removed from the railroad where they may be regarded as a flint fire clay reserve. The

same statements are true in general of the residual and alluvial clays of central Kentucky. In the Jackson Purchase some of the best ball and sagger clays are only indexed by small prospecting pits at points removed by several miles from present lines of transportation. These are also important clay reserves.



POTTERY KILN, BYBEE, KENTUCKY

In the year 1924, the raw clay products of Kentucky consisted of about 231,288 tons valued at $1,000,698.00. In the year 1924 the manufactured product derived from clays of this state totaled $7,613,640.00. It is safe to say that with the development of the greater industrialism now imminent in Kentucky that these variegated clay deposits may be expected to respond to every need required of them and will constitute in the near future a staple mineral industry of very large extent.

KENTUCKY

MANUFACTURE OF CLAY PRODUCTS

1916 to 1925, inclusive

Year	No. Establishments	Value
1916	69	$3,559,257
1917	55	5,037,636
1918	47	6,172,554
1919	49	5,711,257
1920	45	7,309,194
1921	45	4,362,094
1922	39	5,159,144
1923	44	7,676,665
1924	44	7,613,640
1925*	50	8,056,425

KENTUCKY CLAY-PRODUCTS INDUSTRIES

(Correct to 1925.)

BARREN COUNTY

Dickinson Brick and Tile Co., Glasgow, Ky.

BELL COUNTY

Rose Hill Brick Co., Pineville, Ky.

BOYD COUNTY

Ashland Fire Brick Co., Ashland, Ky.
Carter County Clay Co., Ashland, Ky.
Gates, J. J. & Co., 1500 E. Carter Ave., Ashland, Ky.
Kentucky Face Brick Corporation, Ashland, Ky.
Pittsburg Brick & Tile Co., Ashland, (Summit Station) Ky.

BOYLE COUNTY

Danville Brick Co., Danville, Ky.

BRECKINRIDGE COUNTY

Murray Roofing Tile Co., Cloverport, Ky.

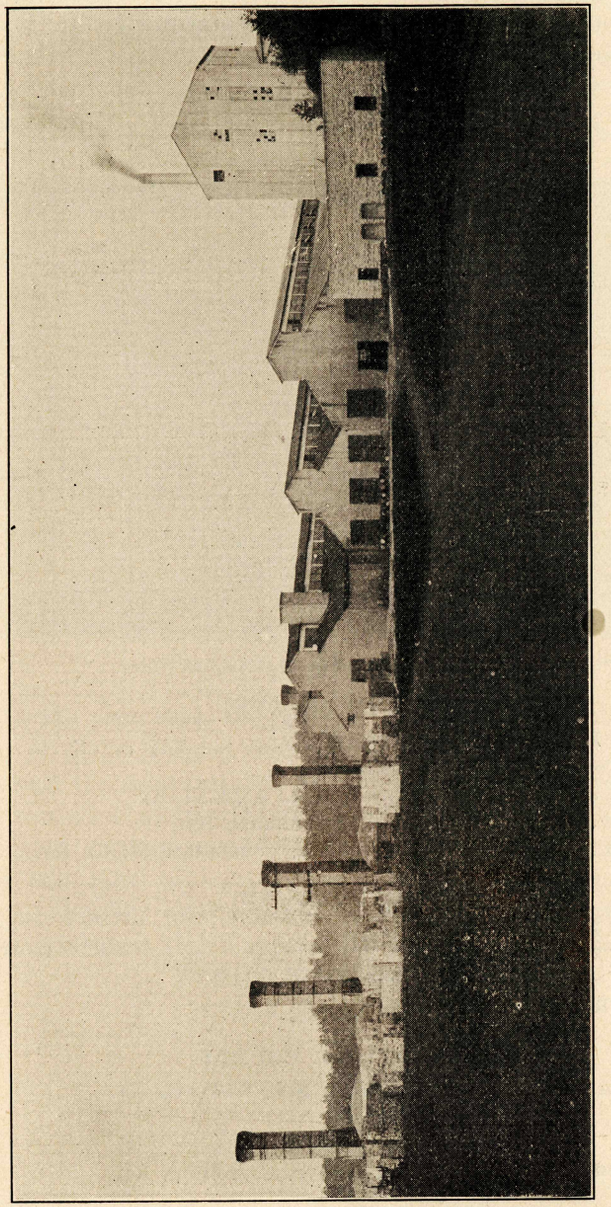
CAMPBELL COUNTY

Alhambra Tile Co., 10th & Monroe Sts., Newport, Ky.

CARROLL COUNTY

Carrollton Brick Co., S. A. Grobmyer, Carrollton, Ky.

*The figures for 1925 are preliminary and subject to such correction as may be found necessary upon further examination of the returns.



FIRE BRICK PLANT, HITCHENS, EASTERN CARTER COUNTY, KENTUCKY

CARTER COUNTY

Louisville Fire Brick Works, Inc., Grahn, Ky. (Louisville, Ky.)
Ashland Fire Brick Co., (Ashland, Ky.), Soldier, Ky., mill at Hayward, Ky.
General Refractories Co. (1512 Chestnut St., Philadelphia, Pa.), Hitchins, Ky.
General Refractories Co., (1512 Chestnut St., Philadelphia, Pa.), Olive Hill, Ky.
Harbison-Walker Refractories Co., (Farmers Bank Bldg., Pittsburgh, Pa.), Olive Hill, Ky.

CHRISTIAN COUNTY

Dalton Brothers Brick Co., 129 E. 7th St., Hopkinsville, Ky.

CLARK COUNTY

Winchester Granite Brick Co., Winchester, Ky.

DAVIESS COUNTY

Clark Mfg. Co., (Owensboro, Ky.), mill located at Mosleyville, Ky.
Owensboro Clay Products Co., Inc., Owensboro, Ky.
Owensboro Sewer Pipe Co., 800 Moreland St., Owensboro, Ky.

FAYETTE COUNTY

Bishop, Theopilus, Lexington, Ky.
Fayette Brick Co., Lexington, Ky.
Lexington Brick Co., New Liberty Pike, Lexington, Ky.

FULTON COUNTY.

Bransford & Sons, J. H., Fulton, Ky.
Hill & Sons, W. M., Fulton, Ky.

GRAVES COUNTY

Mayfield Brick Co., Mayfield, Ky.
Kentucky Clay Mining Co., Mayfield, Ky.
Wickersham, B., (brick), Mayfield, Ky.

GREENUP COUNTY

Kentucky Refractories Co., Chinnville, Ky.
Taylor's Sons Co., The Chas. (Cincinnati, O.), McCall, Ky., mill located at Taylor, Ky.

HARDIN COUNTY

West Point Brick and Lumber Co., West Point, Ky.

HENDERSON COUNTY

Kleymeyer-Klutey Brick & Tile Works, Henderson, Ky.

HOPKINS COUNTY

Clark Mfg. Co. (Owensboro, Ky.), Ashbyburg, Ky.
Dawson Brick Co., Dawson Springs, Ky.
Hall, John W., Madisonville, Ky.
Hall, W. L., Brick Mfrs., 519 E. Broadway, Madisonville, Ky.
Madisonville Tile Co., Madisonville, Ky.

JESSAMINE COUNTY

Schoneider, A. H. & Sons, Nicholasville, Ky.

JEFFERSON COUNTY

Bannon, P., Pipe Co., 836 S. 13th St., Louisville, Ky.
Coral Ridge Clay Products Co., offices at Inter-Southern Bldg., Louisville; plant at Coral Ridge, Ky.
Louisville Fire Brick Works, Inc., 4554 Louisville Ave., Louisville, Ky.
Progress Press Brick Co., Poplar Level Road, Louisville, Ky.
Southern Brick & Tile Co., 13th and Ormsby Sts., Louisville, Ky.; plant at Whitner; P. O. at Buechel, Ky.

KENTON COUNTY

Broering & Meier, 325 W. 19th St., Covington Ky.
Busse Brick Co.. Inc., 47th & L. N. R. R., Covington, Ky.
Cambridge Tile Mfg. Co., The, 1601 Woodburn St., Covington, Ky.

KNOX COUNTY

Barbourville Brick Co., Barbourville, Ky.

INTERIOR OF OLD HAND POTTERY IN MADISON COUNTY

LEWIS COUNTY

Peebles Paving Brick Co., (Portsmouth, O., Drawer 1001), Firebrick, Ky.

McCRACKEN COUNTY

Hill Karnes Brick Co., Inc., Sixth & Boyd Sts., Paducah, Ky.
Paducah Brick & Tile Co., 1439 Murrell Blvd., Paducah, Ky.

MADISON COUNTY

Richmond Brick & Tile Co., Richmond Ky.

MARION COUNTY

Goodin Brick & Tile Co., Lebanon, Ky.

MASON COUNTY

Maysville Brick Co., office at Box 454, located at C. & O. Ry., Maysville, Ky.
Sphar Brick Co., Maysville, Ky.

NELSON COUNTY

Nelson Brick & Tile Co., New Haven, Ky.

ROWAN COUNTY

Kentucky Fire Brick Co., (Portsmouth, Ohio), Haldeman, Ky.
Gilmore Fire Clay Co., Morehead, Ky.

UNION COUNTY

Alhorn & Waller, (Morganfield, Ky.), Uniontown, Ky.
Quinn Wynn Brick Co., Sturgis, Ky.

WARREN COUNTY

Smith, C. H., 212 10th St., Bowling Green, Ky.

WEBSTER COUNTY

Providence Brick Co., Providence, Ky.

WHITLEY COUNTY

Corbin Brick Co., (Box 24, Corbin, Ky.), Woodbine Ky.

POTTERY ESTABLISHMENTS

CALLOWAY COUNTY

Pottertown Pottery Co., Inc., Almo, Ky. Plant at Pottertown, Ky.

FAYETTE COUNTY

Bybee Pottery Co., Inc., Lexington, Ky.

GRAVES COUNTY

Bell City Pottery, formerly W. D. Russell & Sons, Farmington, Ky.

JEFFERSON COUNTY

Louisville Pottery Co., 226 E. Bloom St., Louisville, Ky.

McCRACKEN COUNTY

Paducah Pottery Co., 7th & Trimble Sts., Paducah, Ky.